

Numbers and Operations
Lesson 5: Ratio and Proportion:
Problem Solving Applications
Math for Standards

Name _____

Date _____

EQ: How are ratios and proportions used to help us solve real world situations?

A ratio compares two numbers in words _____, as a fraction
_____, or with a colon _____.

A rate compares two measurements with different _____ such as
_____.

When the denominator equals _____, we have the unit rate.

A proportion shows two ratios are _____ and can be solved by
_____.

If the cross products are not _____, it is not a proportion.

Multiplying by a constant represents _____.

Scaling and scale drawings are solved with proportions.

Example 1: Express the ratio in lowest terms:

6 pounds
12 ounces

Example 2: Determine if the following are true proportions or not:

a. $\frac{3}{4} = \frac{9}{12}$

b. $\frac{5}{7} = \frac{45}{62}$

c. $\frac{65}{21} = \frac{130}{42}$

d. $\frac{9}{11} = \frac{54}{77}$

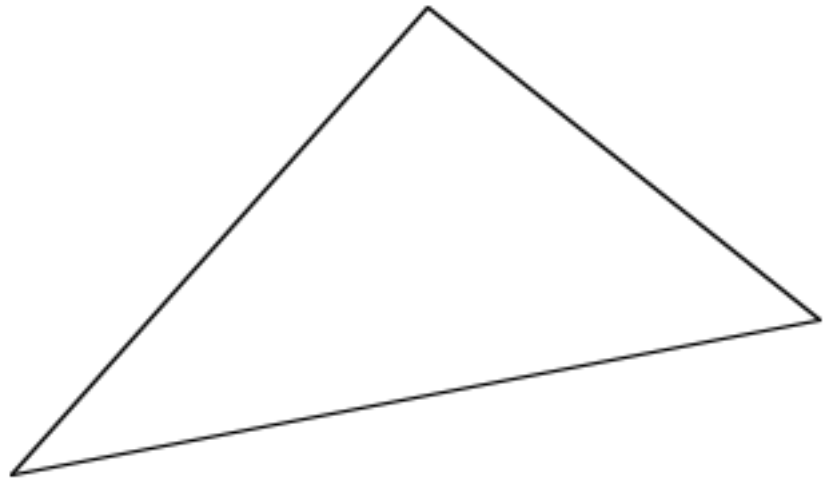
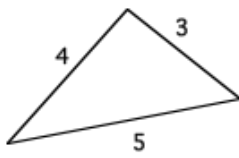
Example 3: Matt Mitarnowski climbs stairs at a rate of 22 steps every 10 seconds. At that rate, approximately how long will it take to climb 803 stairs?

Example 4: Fuzzy Jeff and Maggie Brann stuffed 126 envelopes, sharing the load. Jeff stuffed $\frac{4}{9}$ of the envelopes. How many did each stuff?

Example 5: A recipe for bread calls for 5.4 cups of flour. Write an equation that could be used to find F , the number of cups of flour needed to make b loaves of bread. Then find how many cups are needed to make 7 loaves of bread.

Example 6: The blueprints for a shed use a scale of $\frac{1}{4}$ inch : 1 foot. A wall of the shed is 10 feet long. How long will the wall be in the plans?

Example 7: The right triangle shown below is similar to a larger one. The dimensions of the sides are in the two triangles is 7 to 3. Find the length of the missing sides.



Example 8: In the blueprints for a new section of stands in a high school stadium, 1 cm represents 1.7 m. The length of the stands in the plans is 9.3 cm. How long will the stands actually be?